

A new species of *Pentapodus* (Teleostei: Nemipteridae) from the western Pacific

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ABSTRACT

Pentapodus aureofasciatus is described as a new species of whiptail bream (family Nemipteridae) based on specimens collected from the Ryukyu Is, Taiwan, Indonesia, Papua New Guinea, north-eastern Australia, New Caledonia, Fiji, Tonga and Samoa. The species is similar to other congeners in general appearance, but is characterised by having scales on top of the head not reaching forward to a line between the posterior nostrils; lower limb of preopercle with 2 or 3 scale rows; lateral-line scales 42 to 48 (usually 46 or 47); caudal fin forked, lobes more or less equal in length, and lacking filamentous extensions; and by having a distinctive broad pale yellow band along the body from behind eye to caudal peduncle. A key to the species of *Pentapodus* is provided.

KEYWORDS: Nemipteridae, *Pentapodus*, whiptail bream, new species, tropical western Pacific.

INTRODUCTION

The whiptail breams of the genus *Pentapodus* (family Nemipteridae) are a small group of fishes found only in the tropical western Pacific. They are mostly medium-sized (to about 20 cm total length), coral reef species, although some range over soft substrata, usually associated with sponge beds or other benthic communities in depths less than 100 m.

The genus has been reviewed by Fowler (1933), Weber and de Beaufort (1936), and more recently by Russell (1990), who recognised nine species: *Pentapodus bifasciatus* (Bleeker), *P. caninus* (Cuvier), *P. emeryii* (Richardson), *P. nagasakiensis* (Tanaka), *P. paradiseus* (Günther), *P. porosus* (Valenciennes), *P. setosus* (Valenciennes), *P. trivittatus* (Bloch), *P. vitta* Quoy and Gaimard, and an undescribed species.

The species of *Pentapodus* previously recognised by Russell (1990) as undescribed, is described herein as new. A key to the species of *Pentapodus* is provided.

METHODS AND MATERIALS

Methods of counting and measuring specimens follow Russell (1986). Counts and measurements are based on a wide range of material. In the new species description, measurements and counts for the holotype are given first. Those for the paratypes, where different from the holotype, are enclosed in parentheses. Specimens examined are in the following institutions: Australian Museum, Sydney (AMS); Institute of

Zoology, Academia Sinica, Taiwan (ASIZP); Museum of Natural History, London (BMNH); Bernice P. Bishop Museum, Honolulu (BPBM); Queensland Museum, Brisbane (QM); Museum and Art Gallery of the Northern Territory, Darwin (NTM); University of Ryukyus, Okinawa (URM); Western Australian Museum, Perth (WAM).

SYSTEMATICS

Family Nemipteridae

Pentapodus aureofasciatus n. sp.

Figs 1, 2

Pentapodus nagasakiensis (non Tanaka). - Fourmanoir and Laboute 1976: 96 (New Caledonia); Lee 1986: 170, pl. 3, fig. 18 (Taiwan); Lee in Shen 1993: 372, pl. 108 (Taiwan).

Pentapodus microdon (non Bleeker). - Fourmanoir and Laboute 1976: 96 (New Caledonia).

Pentapodus sp. - Randall *et al.* 1990: 205 (Great Barrier Reef, Australia).

Type material. HOLOTYPE - NTM S.10919-001, 153.7 mm SL, male, American Samoa, Tutuila Island (14° 18'S, 170° 42'W), Fagatogo market, R.C. Wassa, 22 September 1982. PARATYPES (21 specimens) - AMS I.16010-001, 147.3 mm SL, male, Australia, Queensland, Broadhurst Reef (18° 58'S, 147° 41'E), G. Coates, 1971; AMS I.17466-021, 108.8 mm SL, female, New Caledonia, Puetege Reef (22° 22'S, 167° 08'E), 6-25m, spear, G.R. Allen and W.A. Starek II, 15 June



Fig. 1. *Pentapodus aureofasciatus* n. sp., paratype (BPBM 27118), 156 mm SL, New Caledonia (photo: J.E. Randall).

1973; AMS I.20584-003, 2:86.0-93.5 mm SL, Australia, Queensland, One Tree Island (23° 30'S, 152° 05'E), 15 m, explosive, B.C. Russell and party, 24 November 1973; ASIZP 055680, 140.8 mm SL, Taiwan, Henggehun (22° 03'N, 120° 45'E), 19 February 1981; BMNH 1858.4.29:483, 131.3 mm SL, Indonesia, Ambon (3°41'S, 128°10'E), BPBM 20868, 125.5 mm SL, female, Fiji, Bega (18° 25'S, 178° 02'E) between Stuart Island and Yanuea Island, spear, B. Carlson, 16 January 1974; BPBM 27118, 156.0 mm SL, New Caledonia, N.E. coast, off Solitaire Island (21° 48'S, 166° 38'E), 40 m, hook and line, J.E. Randall, 11 January 1979; BPBM 27838, 99.4 mm SL, male, Australia, Queensland, Lizard Island (14° 39'S, 145° 27'E), Granite Bluff, 18 m, spear, J.E. Randall, 20 September 1981; BPBM 29186, 155.4 mm SL, Tonga, Vava'u Group, W. side of Luamoko Island (18° 21'S, 174° 06'W), 25 m, spear, J.E. Randall, 16 March 1983; BPBM 30250, 137.5 mm SL, male, Papua New Guinea, Port Moresby, Bootless Inlet, seaward side of Horseshoe Reef (9° 29'S, 147° 15'E), 36 m, spear, P.L. Colin, 23 January 1984; NTM S.10728-001, 3:83.6-110.3 mm SL, Australia, Queensland, Lizard Island (14° 39'S, 145° 27'E), North Point Reef, 15-18 m, spear, B.C. Russell, 5 February 1983; QM I.16606, 142.9 mm SL, Australia, Queensland, 6-8 miles E. of Mooloolaba (26° 46'S, 153° 18'E), 27-36 m, J. Johnson, 2 July 1979; QM I.16609, 118.5 mm SL, Australia, Queensland, Lizard Island (14° 39'S, 145° 27'E), hook and line, E. Grant, 13 July 1979; QM I.19753, 173.4 mm SL, Australia, Queensland, off Cape Moreton, Flinders Reef, (26° 59'S, 153° 30'E), hook and line, E. Grant, 12 September 1982; QM I.20333, 158.0 mm SL, Australia, Queensland, S. of Noosa, 5 km E. of Peregian

Beach (26° 29'S, 153° 08'E), 25 m, hook and line, E. Grant, 3 July 1983; WAM P.28095-001, 141.7 mm SL, American Samoa, Tutuila Island, Taema Bank (14°19'18"S, 170°39'13"W), 28 m, spear, R.C. Wass, 3 May 1977; URM P11790, 126.0 mm SL, Japan, Ryukyu Is, Okinawa Island (26° 31'N, 127° 59'E), 13 September 1985; URM P20053, 129.0 mm SL, Japan, Ryukyu Is, Okinawa Island (26° 31'N, 127° 59'E), 16 November 1988.

Diagnosis. Snout length about equal to diameter of eye; scales on top head not reaching forward to a line between posterior nostrils; suborbital naked or with a small patch of scales beneath the eye; lower limb of preopercle with 2 or 3 scale rows; lateral-line scales 42 to 48 (usually 46 or 47); pectoral-fin rays 15 to 17; pelvic fins moderately long, reaching to or just short of level

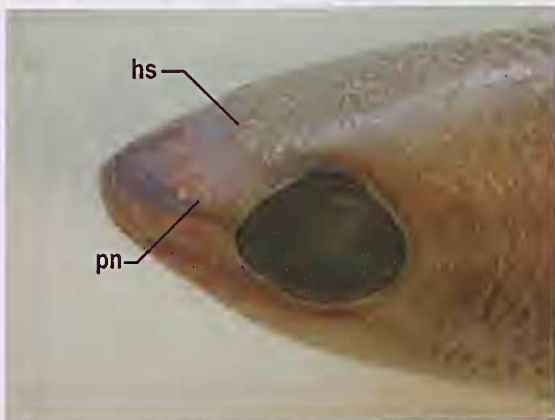


Fig. 2. *Pentapodus aureofasciatus* n. sp., holotype, anterior dorsolateral aspect of head showing extent of scales on top of head (hs), not reaching forward to a line between posterior nostrils (pn).

of anus; caudal fin forked, lobes more or less equal in length (Fig. 1).

Description. Dorsal-fin rays X,9; anal-fin rays III,7; pectoral-fin rays 17 (15-17); pelvic-fin rays I,5; lateral-line scales 47 (42-48); transverse scale rows above lateral-line 3 (2.5-3); transverse scale rows below lateral-line 11 (11-16); transverse scale rows on preopercle 4+3 (4+2 – 7+3).

Depth 4.0 (3.4-4.2) in SL; head 3.5 (3.4-3.8) in SL; snout 3.4 (3.2-3.8) in head; eye 3.2 (2.8-3.6) in head; interorbital width 3.6 (3.2-4.4) in head; suborbital depth 11.0 (8.5-12.6) in head; eye 1.0 (0.7-1.1) in snout; suborbital depth 3.4 (2.5-4.4) in eye; peduncle depth 1.6 (1.2-1.7) in peduncle length; dorsal-fin length 1.9 (1.8-2.0) in SL; fourth or fifth dorsal spine longest, 1.7 (1.6-2.8) times length of first dorsal spine; sixth or seventh dorsal ray longest, 1.0 (0.8-1.0) times length of longest dorsal spine; anal-fin length 6.4 (6.1-7.2) in SL; first anal spine 1.9 (1.6-2.6) in length of second anal spine; second anal spine 1.2 (1.1-1.4) in length of third anal spine.

Maxilla reaching almost to or just behind anterior margin of eye; pelvic fins reaching to or just short of vent; scales on top of head not reaching forward to a line between posterior nostrils (Fig. 2); suborbital naked (small patch of scales just below eye present in specimens from Tonga and Samoa); lower limb of preopercle scaly; 1-3 pairs of small to moderately large canines in front of upper jaw; a pair of large canines in front of lower jaw.

Colour in alcohol. Body pale brown, lighter below. Dusky brown band from tip of snout to middle of anterior margin of eye; a second narrower dusky band parallel to first, from upper lip to anteroventral margin of eye (bands on snout faded or lacking in some specimens).

Life colours. Body pale blue, whitish on ventral surface; narrow pale yellow band extending along back above lateral-line from behind eye to posterior end of dorsal fin (faded or absent in larger specimens); second broader pale yellow band extending mid-laterally along body from behind eye to caudal peduncle (fading beneath soft dorsal fin in larger specimens); blue band from tip of snout to middle of anterior margin of eye; second blue band from upper lip, passing under anteroventral margin of eye and fading on preopercle; interspace between bands on snout pale yellow; pearly blue band on ventral surface from behind pelvic fins to caudal peduncle present in larger specimens; fins pale pinkish, caudal fin deep pink in specimens from Taiwan, Okinawa, New Caledonia and Tonga; the specimen from Tonga (BPBM 29186) with outer portion of upper lobe of caudal fin blackish.

Juveniles bright blue, with two yellow lateral bands: upper one extending from behind eye to upper part of

caudal peduncle on either side of body, this band joining on top of head above anterior margin of eye; lower one running mid-laterally from upper lip through lower margin of eye to caudal peduncle. Randall *et al.* (1990: 205) illustrate the adult and juvenile colour form of this species.

Remarks. In general body form *Pentapodus aureofasciatus* resembles *P. trivittatus* (Bloch) but differs in colour, notably in lacking dusky stripes along the sides and a dark bar at the base of the pectoral fin. It is similarly coloured to *P. caninus*, but differs in the extent of the scaled area on top of the head, which does not reach forward to a line between posterior nostrils, and lacks a naked wedge-shaped medial notch. The caudal fin also is forked rather than falcate.

This species has been previously misidentified as *P. nagasakiensis* (Fourmanoir and Laboute 1976; Lee 1986; Lee in Shen 1993) or *P. microdon* (Fourmanoir and Laboute 1976). Randall *et al.* (1990) illustrated it as *Pentapodus* sp.

Australian specimens of *P. aureofasciatus* lacked banding on the snout, although this may be an artifact of preservation. Bruce Carlson (pers. com.) reports that some individuals of this species in Fiji have the upper lobe of the caudal fin blackish, similar to that of the Tonga specimen, and this may be a sexual colour pattern.

Local name in Samoa is *Tivao-sugale* (R.C. Wass pers. com.)

Distribution. Widely distributed, from the Ryukyu Islands, Taiwan, Indonesia (Ambon), Papua New Guinea (Port Moresby), north-eastern Australia (Queensland to northern New South Wales), New Caledonia, Fiji, Tonga and Samoa.

Etymology. Named *aureofasciatus* in reference to the distinctive yellow mid-lateral band of this fish.

Key to the species of *Pentapodus*

1. a Caudal fin with upper rays or upper and lower rays produced into long trailing filaments 2
 - b Caudal fin without long filamentous extensions, lobes pointed, sharply pointed, or falcate 4
2. a Upper and lower lobes of caudal fin produced into long trailing filaments; lower limb of preopercle scaly, at least posteriorly; lateral-line scales 50 to 56 (usually 52 to 54) (Philippines, Indonesia, north-western Australia) *P. emeryii*
 - b Upper lobe of caudal fin only produced into long trailing filament; lower limb of preopercle naked; lateral-line scales 46 to 50 3
3. a Three dusky stripes (blue in life) on snout; first from eye to tip of snout, second from eye across snout in front of nostrils, third joining eyes behind nostrils (north-eastern Australia, Papua New Guinea, Solomon Is) *P. paradisens*

- b Two dusky stripes (blue in life) on snout; first from eye to middle of upper lip, second from eye to tip of snout; no stripe joining eyes (Philippines, Indo-Malay Archipelago) *P. setosus*
4. a Head scales reaching forward dorsally to, or in front of, a line between posterior nostrils 5
 b Head scales reaching forward dorsally to a line between anterior margin of eyes, or almost to posterior nostrils..... 7
5. a Head scales reaching to a line between posterior and anterior nostrils; scaled area between nostrils rectilinear (Philippines, Indo-Malay Archipelago) *P. bifasciatus*
 b Head scales extending to, or in front of, a line between posterior nostrils; scaled area between nostrils with a naked, medial wedge-shaped notch anteriorly 6
6. a Lower limb of preopercle scaly; caudal fin forked, lobes falcate, upper lobe usually longer than lower (Philippines, Indo-Malay Archipelago)
 *P. caninus*
 b Lower limb of preopercle naked; caudal fin forked, lobes pointed, more or less equal in length (south-western Australia) *P. vitta*
7. a Lower limb of preopercle naked 8
 b Lower limb of preopercle scaly 9
8. a Snout length greater than eye diameter; body moderately deep (depth 3.0 to 3.7 in SL); black spot on caudal peduncle (north-western Australia)
 *P. porosus*
 b Snout length equal to or less than eye diameter; body slender (depth 3.9 to 4.5 in SL); no spot on caudal peduncle (Japan, S. China Sea, northern Australia) *P. nagasakiensis*
9. a Body pale with 3 dusky stripes (brown in life) along sides; dark bar at base of pectoral fin (Indo-Malay Archipelago, New Guinea, Solomon Is)
 *P. trivittatus*
 b Body colour not as above; no dark bar at base of pectoral fin *P. aureofasciatus* n. sp.

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